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OEL 237/64

12 March 1964

MEMORANDUM FOR: Director of Logistics

SUBJECT : Request to Initiate New Task Order With

25X1A5a1

1. The proposed task order is entitled "Feasibility Study for a Unique Preselector/Mixer Combination". It is a combination of two projects: OEL Project 7066, Broadband Microwave Mixer, and OEL Project 7067, Microwave Preselector. The program goal is the development of a new microwave pre-selector/mixer which will give improved receiver sensitivity and immunity to interference from the environment. Strong emphasis is placed on the development of new concepts, investigation of properties of materials which lend themselves to this problem but which have not previously been exploited for receiver components, and a search for better materials. In short, the project calls for a thorough investigation of all conceptual solutions to the problem, and implementation of the approach which appears most promising.

2. The requirement for the program stems from the need to combine in one microwave receiver several characteristics which at present are mutually exclusive. These characteristics include low noise figure, immunity to interference from the RF environment, small size, and low power drain. These are all necessary for portable reception of weak signals when strong interfering signals are present. This program will substantially improve capabilities for weak signal reception of both portable and non-portable receivers.

3. The specifications which require a research program of the type specified are given below. They represent a significant advance in the state of the art of preselectors and mixers.

- a. Noise figure and gain shall be sufficient to give a receiver noise figure of six db or less.

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GROUP 1
Excluded from automatic
downgrading and
declassification

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- b. Spurious free dynamic range shall be sixty db, i.e. reception of a signal shall not be degraded by an interfering signal up to sixty db stronger than the desired signal.
- c. Total power drain shall be approximately one watt.
- d. Size and weight are to be minimized.
- e. Frequency coverage of each unit will be as great as possible without sacrificing performance characteristics.

Items c, d, and e were not made firm, definite requirements because it was felt this would restrict the research effort.

- 25X1A5a1 4. The contractor will be [REDACTED] 25X1A5a1
25X1A5a1 [REDACTED] Task order duration will be [REDACTED] 25X1A1a
twelve months. The CPFF estimate for the program is [REDACTED]
- 25X1A5a1 5. Detailed technical specifications for the project 25X1A5a1
are given in Attachment A. Attachment B is the [REDACTED]
[REDACTED] proposal and cost estimate. Attach-
ment C is the justification of the selection of this contractor.
- 25X1A9a 6. The project engineer is [REDACTED], extension 25X1A9a
4518.

25X1A9a [REDACTED]

GEORGE C. MILLER
Assistant Director for ELINT, DD/S&T

Attachments:

- 25X1A5a1 A. Specification RD-64-120S
B. [REDACTED] Proposal
C. Justification of contractor selection.

APPROVED:

ALBERT D. WHEELON
Deputy Director
(Science and Technology)

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